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EXAMINER

WM31/0523

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ART UNIT

PAPER NUMBER

2623

DATE MAILED:

05/23/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No. 09/367630	Applicant(s) Yoshihito Saito et al.
Examiner S. Ahmed	Group Art Unit 2623

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days; a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 3/2/01
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 11-29 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 11-29 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

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1. The amendment filed 3/02/01 have been entered and made of record.
2. In response to Applicant's amendment filed 3/02/01 the objection to claims 1 and 6 is moot.
3. In response to Applicant's amendment filed 3/02/01 the 112, second paragraph to claims 1-5 is moot.
4. Applicant has canceled independent claims 1 and 6 to add new independent claims 11, 18, 19, 25, 26, and 27, that include among other features "a semiconductor memory device for storing registered fingerprint data", "a matching unit for determining by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said fingerprint sensor matches with any of the registered fingerprint data stored in said semiconductor memory device", and "wherein at least one of said components (b) to (f) is housed in a portable key unit separated from said locking mechanism". Applicant did not previously claim these features in the combination as now claimed. By adding these limitations, Applicant has traversed the rejection in the first Office Action. Applicant's arguments filed 3/02/01, with regard to claims 1, and 6 have been fully considered but they are moot in view of the new grounds of rejection.

Claims

5. Claims 28-29 are objected to under 37 CFR 1.75. Although the claims has not been rejected under 112/2nd, claims 28-29 (lock-controlling system) are not considered proper dependent claims as these claims depend from claim 11 (locking device). "the lock-controlling

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system of claim 11" on line 1 of claims 28-29 should be changed to -- the lock-controlling system of claim 27--. For art rejection, the claims will be considered to depend from claim 27.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 12-18 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 12, recites "wherein said pressure-based fingerprint sensor and said semiconductor memory device are housed in said locking mechanism", line 1-2. There is no disclosure in the specification as originally filed of the pressure-based fingerprint sensor and the semiconductor memory device are housed in the locking mechanism or how to perform it. The specification discloses as shown in Fig. 1 (and page 11, lines 6-7) a locking mechanism (latching solenoid D) which is housed with other elements such as the pressure-based fingerprint sensor and the semiconductor memory device in the locking device 10, there is no element housed in the

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locking mechanism. For art rejection, the claims will be interpreted such that the different claimed elements are housed in the locking device as enabled by the specification.

As to claims 13-18 refer to claim 12 rejection.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 13, 19-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13, recites "wherein said pressure-based fingerprint sensor and said matching unit are housed in said locking mechanism, and wherein said matching unit is housed in said portable key unit", lines 1-3. The matching unit cannot be housed in both the locking mechanism and the portable key unit at the same time. For art rejection, the claim will be interpreted such that "the semiconductor memory device is housed in the portable key unit".

Claim 19, recites "wherein said pressure-based fingerprint sensor is separated from said switch", lines 11-12. It is not clear whether "said switch" refers to the "starting switch" or the "switching device". For art rejection, the claim will be interpreted such that the claimed elements are housed in the switching device as supported by the specification (see Fig. 43, switching device 10 b).

As to claims 20-26, refer to claim 19 rejection.

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Claim 22, recites “wherein said pressure-based fingerprint sensor and said matching unit are housed in said portable key unit, and wherein said matching unit is housed in said switch”, lines 1-3. The matching unit cannot be housed in both the switch and the portable key unit at the same time. For art rejection, the claim will be interpreted such that “fingerprint sensor and the semiconductor memory device is housed in the portable key unit” as supported by the specification.

Drawings

10. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “different elements in claims 12-18 that are housed in the locking mechanism” (refer to paragraph 7) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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12. Claims 11, 17-18, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowker et al (U.S. Patent 5,963,657) in view of Itsumi et al. (U.S. Patent 5,745,046).

As to claim 11, Bowker disclose a locking device (see Fig. 7) comprising:

- (a) a locking mechanism for locking movement of an object to be unlocked [solenoid drive 999 for locking movement of door 960 (col. 23, lines 8-9, and 20-22, Fig. 7, items 999, 960)] ;
- (b) a mechanism for restricting unlocking movement of the object [bolt 963 for restricting unlocking movement of door 960 (col. 23, line 20-23, Fig. 7, items 963, 960)];
- © a fingerprint sensor for detecting a fingerprint pattern (col. 23, lines 37-42);
- (d) a semiconductor memory device for storing registered fingerprint data [EPROM 507 stores authorized-user fingerprint templates (col. 22, lines 50-52, Fig. 6, item 507), the EPROM as shown in Figs 22 and 23-2 is a an IC (integrated circuit) chip which is conventionally made of silicon (semiconductor)], ;
- (e) a matching unit for determining by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said fingerprint sensor matches with any of the registered fingerprint data stored in said semiconductor memory device (col. 22, lines 50-55); and
- (f) a control unit for unlocking the locking mechanism through said restricting mechanism when there is a match between the detected fingerprint data and the registered fingerprint data (col. 22, lines 58-61, col. 23, lines 37-46);

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wherein at least one of said components (b) to (f) is housed in a portable key unit separated from said locking mechanism [in some systems the fingerprint templates may be fetched from an identification card (portable key) carried by the user (col. 22, line 66-col. 23, line 1-2) i.e., the semiconductor memory device that stores fingerprint templates is on an ID card].

Bowker does not disclose that the fingerprint sensor is a pressure-based fingerprint sensor. Itsumi discloses an inexpensive surface pressure fingerprint sensor that is capable of accurately detecting the fingerprint of a fingertip pressed against the sensor. The sensor is not susceptible to the effects of greasiness of the fingertip, moisture (sweat or the like) (col. 3, lines 24-41, col. 5, line 65- col. 6, line 5) compared to optical conventional fingerprint sensors (col. 1, lines 63-65). The sensor is used in a similar application for a locking system to lock a door of a car (Fig. 29 A). One skilled in the art would have clearly recognized that the optical fingerprint sensor of Bowker's device would have been bulky, expensive and sensitive to the effects of greasiness of the fingertip, moisture (sweat or the like) that would have compromised the accuracy of the detected fingerprint. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a pressure-based fingerprint sensor in Bowker's device as taught by Itsumi in order to achieve a compact, inexpensive surface pressure fingerprint sensor that is capable of accurately detecting the user's fingerprint and is not susceptible to the effects of greasiness of the fingertip, moisture (sweat or the like) (col. 6, lines 4-5) compared to other conventional fingerprint sensors (col. 1, lines 63-65).

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As to claim 17, Bowker further discloses, wherein said portable key unit is a card (col. 22, line 66-col. 23, line 1-2).

As to claim 18, refer to claim 11 rejection for their common features. Bowker further discloses wherein all of the components (b) to (f) are housed in the locking device (see Fig. 7, items 963, 960, 927,997).

As to claim 26, refer to claim 11 rejection for their common features. Bowker further discloses a switching device comprising:

(a) a switch for starting operation of an object [internal relay 519 provides a switch closure to an external relay that provides access to utilization means (door) (Col. 22, lines 58-61, col. 24, lines 39-49, Fig. 12, item 97)];

(e) a control unit for operating said switch when there is a match between the detected fingerprint data and the registered fingerprint data (col. 24, lines 39-49, Fig. 12, item 97); wherein all of the components (b) to (e) are housed in the switching device (see Fig. 6, Fig. 7, items 963, 960, 927,997 and Fig. 12).

13. Claims 12-16, 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowker et al (U.S. Patent 5,963,657) in view of Itsumi et al. (U.S. Patent 5,745,046) as applied to claim 11 above and further in view of Gullman et al. (U.S. Patent 5,280,527).

As to claim 12, Bowker further discloses, wherein the fingerprint sensor and the semiconductor memory device are housed in the locking device (see Fig. 7, items 927, and 997, Fig. 6 that shows the details of verification processing system 997 where the EPROM 507

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(semiconductor memory) is located). Neither Bowker nor Itsumi discloses wherein said matching unit is housed in said portable key unit.

Gullman discloses a security apparatus (IC card) 14 including a processing unit, memory and a fingerprint sensor, upon entry of the cardholder's fingerprint information, the processor executes the verification algorithm (col.2, lines 48-55, Fig. 1, item 14, Fig. 2, processor 33). Security safeguards for accessing a host system 10 [which may be any electronic system, such as electronic gate for accessing a secured area (col. 2, line 66- col. 3, line 2)] are provided by an access device 12 and the ID card 14. Access device 12 communicates with the host system (electronic gate for accessing a secured area) to verify authorized personnel and transfer information. Access device 12 may be an electronic lock restricting access to a secured area. The IC card 14 adds another level of security to the access process. The IC card 14 receives the fingerprint input and compares the fingerprint input to a stored template (col. 3, lines 19-46). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Gullman's teachings to modify the combined device of Bowker and Itsumi by using an IC card (portable key unit) that houses the matching processor in order to add another level of security to the access process and eliminate the need for the user to memorize a code or carry a printed memorandum of the code.

As to claim 13 [as best understood by the Examiner], Bowker further discloses wherein the fingerprint sensor and the matching unit are housed in the locking device (see Fig. 7, items 927, and 997, Fig. 6 that shows the details of verification processing system 997 where the

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processor that verifies the user [col. 22, lines 50-55] is located). Neither Bowker nor Itsumi discloses, wherein the semiconductor memory device is housed in the portable key unit.

Gullman discloses a security apparatus (IC card) 14 including a processing unit, memory and a fingerprint sensor, upon entry of the cardholder's fingerprint information, the processor executes the verification algorithm (col.2, lines 48-55, Fig. 1, item 14, Fig. 2, processor 33). Security safeguards for accessing a host system 10 [which may be any electronic system, such as electronic gate for accessing a secured area (col. 2, line 66- col. 3, line 2)] are provided by an access device 12 and the ID card 14. Access device 12 communicates with the host system (electronic gate for accessing a secured area) to verify authorized personnel and transfer information. Access device 12 may be an electronic lock restricting access to a secured area. The IC card 14 adds another level of security to the access process. The IC card 14 receives the fingerprint input and compares the fingerprint input to a stored template (col. 3, lines 19-46). The IC card 14 stores fingerprint templates of authorized users during enroll mode (col. 5, lines 57-65). The memory of the IC card 14 is a multi-chip module (col. 4, lines 39-64, Fig. 3, item 32) which is conventionally made of silicon (semiconductor). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Gullman's teachings to modify the combined device of Bowker and Itsumi by using an IC card (portable key unit) that houses the semiconductor memory device in order to add another level of security to the access process and eliminate the need for the user to memorize a code or carry a printed memorandum of the code.

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As to claim 14, Bowker further discloses, wherein the semiconductor memory device is housed in the locking device (see Fig. 7, item 997, Fig. 6 that shows the details of verification processing system 997 where the EPROM 507 (semiconductor memory) is located). Neither Bowker nor Itsumi discloses wherein said fingerprint sensor and said matching unit is housed in said portable key unit.

Gullman discloses a security apparatus (IC card) 14 including a processing unit, memory and a fingerprint sensor, upon entry of the cardholder's fingerprint information, the processor executes the verification algorithm (col.2, lines 48-55, Fig. 1, item 14, Fig. 2, processor 33). Security safeguards for accessing a host system 10 [which may be any electronic system, such as electronic gate for accessing a secured area (col. 2, line 66- col. 3, line 2)] are provided by an access device 12 and the ID card 14. Access device 12 communicates with the host system (electronic gate for accessing a secured area) to verify authorized personnel and transfer information. Access device 12 may be an electronic lock restricting access to a secured area. The IC card 14 adds another level of security to the access process. The IC card 14 receives the fingerprint input and compares the fingerprint input to a stored template (col. 3, lines 19-46). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Gullman's teachings to modify the combined device of Bowker and Itsumi by using an IC card (portable key unit) that houses the fingerprint sensor and the matching processor in order to add another level of security to the access process and eliminate the need for the user to memorize a code or carry a printed memorandum of the code.

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As to claim 15, Neither Bowker nor Itsumi discloses wherein said pressure-based fingerprint sensor, said matching unit, and said semiconductor memory device are housed in said portable key unit.

Gullman discloses a security apparatus (IC card) 14 including a processing unit, memory and a fingerprint sensor, upon entry of the cardholder's fingerprint information, the processor executes the verification algorithm (col.2, lines 48-55, Fig. 1, item 14, Fig. 2, processor 33). Security safeguards for accessing a host system 10 [which may be any electronic system, such as electronic gate for accessing a secured area (col. 2, line 66- col. 3, line 2)] are provided by an access device 12 and the ID card 14. Access device 12 communicates with the host system (electronic gate for accessing a secured area) to verify authorized personnel and transfer information. Access device 12 may be an electronic lock restricting access to a secured area. The IC card 14 adds another level of security to the access process. The IC card 14 receives the fingerprint input and compares the fingerprint input to a stored template (col. 3, lines 19-46). The IC card 14 stores fingerprint templates of authorized users during enroll mode (col. 5, lines 57-65). The memory of the IC card 14 is a multi-chip module (col. 4, lines 39-64, Fig. 3, item 32) which is conventionally made of silicon (semiconductor). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Gullman's teachings to modify the combined device of Bowker and Itsumi by using an IC card (portable key unit) that houses the fingerprint sensor, the matching unit and the semiconductor memory device in order

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to add another level of security to the access process and eliminate the need for the user to memorize a code or carry a printed memorandum of the code.

As to claim 16, Neither Bowker nor Itsumi discloses, wherein said locking mechanism and said portable key unit are connected electrically through a connector .

Gullman discloses a security apparatus (IC card) 14 including a processing unit, memory and a fingerprint sensor, upon entry of the cardholder's fingerprint information, the processor executes the verification algorithm (col.2, lines 48-55, Fig. 1, item 14, Fig. 2, processor 33). Security safeguards for accessing a host system 10 [which may be any electronic system, such as electronic gate for accessing a secured area (col. 2, line 66- col. 3, line 2)] are provided by an access device 12 and the ID card 14. Access device 12 communicates with the host system (electronic gate for accessing a secured area) to verify authorized personnel and transfer information. Access device 12 may be an electronic lock restricting access to a secured area. The IC card 14 adds another level of security to the access process. The token output from the IC card is transmitted directly to the host system (electronic gate) through a direct data communication line (col. 2, lines 62-65). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Gullman's teachings to modify the combined device of Bowker and Itsumi by using an IC card (portable key unit) that is connected electrically through a connector (direct data communication line) to the host system (electronic gate) [i.e., the locking mechanism] in order to add another level of security to the access process and eliminate the need for the user to memorize a code or carry a printed memorandum of the code.

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As to claim 19, refer to claim 11 rejection for their common features. Bowker further discloses a switching device comprising:

(a) a switch for starting operation of an object [internal relay 519 provides a switch closure to an external relay that provides access to utilization means (door) (Col. 22, lines 58-61, col. 24, lines 39-49, Fig. 12, item 97)];

(e) a control unit for operating said switch when there is a match between the detected fingerprint data and the registered fingerprint data (col. 24, lines 39-49, Fig. 12, item 97). Neither Bowker nor Itsumi discloses, wherein said pressure-based fingerprint sensor or said semiconductor memory device is housed in a portable key unit, and wherein said pressure-based fingerprint sensor is separated from said switch.

Gullman discloses a security apparatus (IC card) 14 including a processing unit, memory and a fingerprint sensor, upon entry of the cardholder's fingerprint information, the processor executes the verification algorithm (col.2, lines 48-55, Fig. 1, item 14, Fig. 2, processor 33). Security safeguards for accessing a host system 10 [which may be any electronic system, such as electronic gate for accessing a secured area (col. 2, line 66- col. 3, line 2)] are provided by an access device 12 and the ID card 14. Access device 12 communicates with the host system (electronic gate for accessing a secured area) to verify authorized personnel and transfer information. Access device 12 may be an electronic lock restricting access to a secured area. The IC card 14 adds another level of security to the access process. The fingerprint sensor is located on the IC card 14 which is separated from the access device 12 (see Fig. 1). It would have been

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obvious to one having ordinary skill in the art at the time the invention was made to use Gullman's teachings to modify the combined device of Bowker and Itsumi by using a portable IC card (portable key unit) that houses the fingerprint sensor that separated from the switching device in order to add another level of security to the access process and eliminate the need for the user to memorize a code or carry a printed memorandum of the code.

As to claim 20, Bowker further discloses wherein the fingerprint sensor and the matching unit are housed in the switching device (see Fig. 7, items 927, and 997, Fig. 6 that shows the details of verification processing system 997 where the processor that verifies the user [col. 22, lines 50-55] is located). Neither Bowker nor Itsumi discloses, wherein the semiconductor memory device is housed in the portable key unit.

Gullman discloses a security apparatus (IC card) 14 including a processing unit, memory and a fingerprint sensor, upon entry of the cardholder's fingerprint information, the processor executes the verification algorithm (col.2, lines 48-55, Fig. 1, item 14, Fig. 2, processor 33). Security safeguards for accessing a host system 10 [which may be any electronic system, such as electronic gate for accessing a secured area (col. 2, line 66- col. 3, line 2)] are provided by an access device 12 and the ID card 14. Access device 12 communicates with the host system (electronic gate for accessing a secured area) to verify authorized personnel and transfer information. Access device 12 may be an electronic lock restricting access to a secured area. The IC card 14 adds another level of security to the access process. The IC card 14 receives the fingerprint input and compares the fingerprint input to a stored template (col. 3, lines 19-46). The

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IC card 14 stores fingerprint templates of authorized users during enroll mode (col. 5, lines 57-65). The memory of the IC card 14 is a multi-chip module (col. 4, lines 39-64, Fig. 3, item 32) which is conventionally made of silicon (semiconductor). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Gullman's teachings to modify the combined device of Bowker and Itsumi by using an IC card (portable key unit) that houses the semiconductor memory device in order to add another level of security to the access process and eliminate the need for the user to memorize a code or carry a printed memorandum of the code.

As to claim 21, Bowker further discloses, wherein the semiconductor memory device is housed in the switching device (see Fig. 7, item 997, Fig. 6 that shows the details of verification processing system 997 where the EPROM 507 (semiconductor memory) is located). Neither Bowker nor Itsumi discloses wherein said fingerprint sensor and said matching unit is housed in said portable key unit.

Gullman discloses a security apparatus (IC card) 14 including a processing unit, memory and a fingerprint sensor, upon entry of the cardholder's fingerprint information, the processor executes the verification algorithm (col.2, lines 48-55, Fig. 1, item 14, Fig. 2, processor 33). Security safeguards for accessing a host system 10 [which may be any electronic system, such as electronic gate for accessing a secured area (col. 2, line 66- col. 3, line 2)] are provided by an access device 12 and the ID card 14. Access device 12 communicates with the host system (electronic gate for accessing a secured area) to verify authorized personnel and transfer

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information. Access device 12 may be an electronic lock restricting access to a secured area. The IC card 14 adds another level of security to the access process. The IC card 14 receives the fingerprint input and compares the fingerprint input to a stored template (col. 3, lines 19-46). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Gullman's teachings to modify the combined device of Bowker and Itsumi by using an IC card (portable key unit) that houses the fingerprint sensor and the matching processor in order to add another level of security to the access process and eliminate the need for the user to memorize a code or carry a printed memorandum of the code.

As to claim 22, Bowker further discloses wherein the matching unit is housed in the switching device (see Fig. 7, item 997, Fig. 6 that shows the details of verification processing system 997 where the processor that verifies the user (matching unit) [col. 22, lines 50-55] is located). Neither Bowker nor Itsumi discloses, wherein the fingerprint sensor and the semiconductor memory device is housed in the portable key unit.

Gullman discloses a security apparatus (IC card) 14 including a processing unit, memory and a fingerprint sensor, upon entry of the cardholder's fingerprint information, the processor executes the verification algorithm (col.2, lines 48-55, Fig. 1, item 14, Fig. 2, processor 33). Security safeguards for accessing a host system 10 [which may be any electronic system, such as electronic gate for accessing a secured area (col. 2, line 66- col. 3, line 2)] are provided by an access device 12 and the ID card 14. Access device 12 communicates with the host system (electronic gate for accessing a secured area) to verify authorized personnel and transfer

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information. Access device 12 may be an electronic lock restricting access to a secured area. The IC card 14 adds another level of security to the access process. The IC card 14 receives the fingerprint input and compares the fingerprint input to a stored template (col. 3, lines 19-46). The IC card 14 stores fingerprint templates of authorized users during enroll mode (col. 5, lines 57-65). The memory of the IC card 14 is a multi-chip module (col. 4, lines 39-64, Fig. 3, item 32) which is conventionally made of silicon (semiconductor). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Gullman's teachings to modify the combined device of Bowker and Itsumi by using an IC card (portable key unit) that houses the fingerprint sensor and the semiconductor memory device in order to add another level of security to the access process and eliminate the need for the user to memorize a code or carry a printed memorandum of the code.

As to claim 23 Neither Bowker nor Itsumi discloses, wherein said switching device and said portable key unit are connected electrically through a connector .

Gullman discloses a security apparatus (IC card) 14 including a processing unit, memory and a fingerprint sensor, upon entry of the cardholder's fingerprint information, the processor executes the verification algorithm (col.2, lines 48-55, Fig. 1, item 14, Fig. 2, processor 33). Security safeguards for accessing a host system 10 [which may be any electronic system, such as electronic gate for accessing a secured area (col. 2, line 66- col. 3, line 2)] are provided by an access device 12 and the ID card 14. Access device 12 communicates with the host system (electronic gate for accessing a secured area) to verify authorized personnel and transfer

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information. Access device 12 may be an electronic lock restricting access to a secured area. The IC card 14 adds another level of security to the access process. The token output from the IC card is transmitted directly to the host system (electronic gate) through a direct data communication line (col. 2, lines 62-65). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Gullman's teachings to modify the combined device of Bowker and Itsumi by using an IC card (portable key unit) that is connected electrically through a connector (direct data communication line) to the switching device in order to add another level of security to the access process and eliminate the need for the user to memorize a code or carry a printed memorandum of the code.

As to claim 24, both Bowker (col. 22, line 66-col. 23, line 1-2) and Gullman (Figs. 2, 3) further discloses, wherein said portable key unit is a card.

As to claim 25, refer to claim 11 rejection for their common features. Bowker further discloses a switching device comprising:

(a) a switch for starting operation of an object [internal relay 519 provides a switch closure to an external relay that provides access to utilization means (door) (Col. 22, lines 58-61, col. 24, lines 39-49, Fig. 12, item 97)];

(e) a control unit for operating said switch when there is a match between the detected fingerprint data and the registered fingerprint data (col. 24, lines 39-49, Fig. 12, item 97); and wherein the fingerprint sensor and the semiconductor memory device are housed in the switching device (see Fig. 7, items 927, and 997, Fig. 6 that shows the details of verification

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processing system 997 where the EPROM 507 (semiconductor memory) is located). Neither Bowker nor Itsumi discloses wherein said matching unit is housed in said portable key unit.

Gullman discloses a security apparatus (IC card) 14 including a processing unit, memory and a fingerprint sensor, upon entry of the cardholder's fingerprint information, the processor executes the verification algorithm (col.2, lines 48-55, Fig. 1, item 14, Fig. 2, processor 33). Security safeguards for accessing a host system 10 [which may be any electronic system, such as electronic gate for accessing a secured area (col. 2, line 66- col. 3, line 2)] are provided by an access device 12 and the ID card 14. Access device 12 communicates with the host system (electronic gate for accessing a secured area) to verify authorized personnel and transfer information. Access device 12 may be an electronic lock restricting access to a secured area. The IC card 14 adds another level of security to the access process. The IC card 14 receives the fingerprint input and compares the fingerprint input to a stored template (col. 3, lines 19-46). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Gullman's teachings to modify the combined device of Bowker and Itsumi by using an IC card (portable key unit) that houses the matching processor in order to add another level of security to the access process and eliminate the need for the user to memorize a code or carry a printed memorandum of the code.

14. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gullman et al. (U.S. Patent 5,280,527) in view of the combination of Itsumi et al. (U.S. Patent 5,745,046) and Bowker et al (U.S. Patent 5,963,657)

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as to claim 27, Itsumi discloses a lock-controlling system (Fig. 1) comprising:

(a) a locking mechanism [Fig. 1 shows access device 12 which is an electronic lock restricting access to secured area (col. 3, lines 33-34)] for locking and unlocking movement of an object [Fig. 1 shows host system 10 which is an electronic gate (object to be locked or unlocked) for accessing a secured area (col. 2, line 66- col. 3, line 2)];

© a portable key unit (Fig. 1, IC card 14) for communicating to said control circuit how to control said locking mechanism according to a fingerprint match determination (col. 2, lines 27-38, col. 3, lines 37-55), wherein said portable key unit comprises: a fingerprint sensor for detecting a fingerprint pattern (Fig. 3, item 18), a semiconductor memory device for storing registered fingerprint data [Fig. 2 shows a multi-chip module 32 which includes a ROM 24, a RAM 33 which is conventionally made of silicon (semiconductor). During enroll mode one or more biometric samples (fingerprint, voice, etc) are obtained and permanently stored as templates (col. 5, lines 57-61)], and a matching unit (Fig. 2, processor 22) for determining by electronic processing whether the fingerprint data created from the fingerprint pattern detected by said sensor matches with any of the registered fingerprint data stored in said semiconductor memory device (col. 5, lines 62-65). Even Gullman shows a fingerprint sensor 18 and shows the electronic lock 12 communicates with the electronic gate 10, he does not explicitly disclose a pressure- based fingerprint sensor and

(b) a control circuit for controlling whether said locking mechanism locks or unlocks movement of said object.

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Itsumi discloses an inexpensive surface pressure fingerprint sensor that is capable of accurately detecting the fingerprint of a fingertip pressed against the sensor. The sensor is not susceptible to the effects of greasiness of the fingertip, moisture (sweat or the like) (col. 3, lines 24-41, col. 5, line 65- col. 6, line 5) compared to optical conventional fingerprint sensors (col. 1, lines 63-65). The sensor is used in a similar application for a locking system to lock a door of a car (Fig. 29 A). One skilled in the art would have clearly recognized that the conventional fingerprint sensor of Gullman's device would have been bulky, expensive and sensitive to the effects of greasiness of the fingertip, moisture (sweat or the like) that would have compromised the accuracy of the detected fingerprint. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a pressure-based fingerprint sensor in Gullman's device as taught by Itsumi in order to achieve a compact, inexpensive surface pressure fingerprint sensor that is compatible with a portable IC card, is capable of accurately detecting the user's fingerprint and is not susceptible to the effects of greasiness of the fingertip, moisture (sweat or the like) (col. 6, lines 4-5) compared to other conventional fingerprint sensors (col. 1, lines 63-65).

Neither Gullman nor Itsumi explicitly discloses,

- (b) a control circuit for controlling whether said locking mechanism locks or unlocks movement of said object.

Bowker discloses a fingerprint analyzer associated with locking mechanisms of a door 960 (Fig. 7) and a drive mechanism 999 [a control circuit] (col. 23, lines 8-18). In the case of a

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solenoid drive 999, a power supply provide enough power to actuate the bolt 963 (col. 23, lines 20-23) [i.e., solenoid drive 999 (control circuit) controlling whether the bolt locks or unlocks the movement of the door (object). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a solenoid drive as taught by Bowker to actuate the lock of the gate in the combined system of Gullman and Itsumi in order to restrict access to the secured area, unlock the door when access is authorized and leave the door locked when access is not authorized.

As to claim 28, Gullman further discloses, wherein said portable key unit is configured to communicate with said control circuit via electrical connector (col. 2, lines 62-65).

As to claim 29, both Bowker (col. 22, line 66-col. 23, line 1-2) and Gullman (Figs. 2, 3) further discloses wherein said portable key unit is a card.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

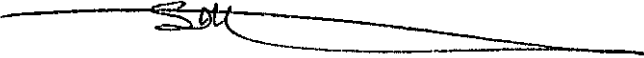
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Samir Ahmed whose telephone number is (703) 305-9870. The examiner can normally be reached on Monday to Friday from 8:00 A.M. to 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Au, Amelia can be reached on (703) 308-6604. The fax phone number for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

SA

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EXAMINER
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